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CASE REPORT

Type IV Thoraco-abdominal Aortic Aneurysm Complicated by an Aorto-enteric Fistula due to Previous Infrarenal Aortic Graft

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Introduction

Most aorto-intestinal fistulae are the result of previous infrarenal aortic aneurysm repair. Although the surgical management of these patients is controversial, many authors advocate the removal of the infrarenal graft, closure of the aortic stump and an axillofemoral bypass.[1,2] We report an unusual case of an aorto-enteric fistula (AEF) secondary to a previous infrarenal aortic graft replacement complicated by a large type IV thoracoabdominal aortic aneurysm (TAAA).

Case Report

A 70-year-old woman was admitted as an emergency with melaena and fever. She had a past history of hypertension, asthma and had undergone an elective abdominal aortic aneurysm repair with an infrarenal bifurcated dacron graft 14 years previously. Two years previously she had a myocardial infarction and during hospitalisation a type IV TAAA extending from the diaphragm to the aortic graft with a maximum diameter of 5 cm had been diagnosed. On admission she was clinically stable and had a palpable aortic aneurysm with no signs of rupture. Oesophagogastroduodenoscopy was normal. Computer tomography (Fig. 1) revealed a type IV TAAA with a maximum diameter of 7 cm and aortic mural gas, suggesting an AEF at the proximal anastomosis of the aortic graft.

At operation an AEF was found between the proximal anastomosis of the infrarenal aortic graft and the jejunum, below the TAAA. No pus was present and bacterial culture was negative. The graft was removed and the entire aorta from the diaphragm was replaced by a polytetrafluroethylene (ePTFE) bifurcated graft to the iliac arteries with attachment of the visceral arteries according to the Crawford technique[2] without cardio-pulmonary bypass. The new graft was placed in the bed of the old graft and the aneurysmal sac was sutured over the graft. The defect in the jejunum was subsequently sutured. Intraoperatively there was a traumatic lesion to the spleen and to the left ureter during dissection of the retroperitoneal adhesions. A splenectomy was performed and the ureter was suturated over a J-stent, which was removed postoperatively by cystoscopy.

The patient had a complicated postoperative period beginning with wound dehiscence 3 days after the operation, which was repaired. She subsequently developed respiratory insufficiency and required artificial ventilation for 5 weeks, after which she received intermittent respiratory support through a tracheostomy. She left hospital 3 months postoperatively and received antibiotics (clindamycin and ciprofloxacin) for 6 months. She recovered with no further complications and is alive and well at 2-year follow-up.

Discussion

Surgical management of AEF presents a challenge to the vascular surgeon. Fortunately, secondary AEFs are usually rare and complicate less than 1% of aortic prosthetic procedures in Swedish centres.[3] They can

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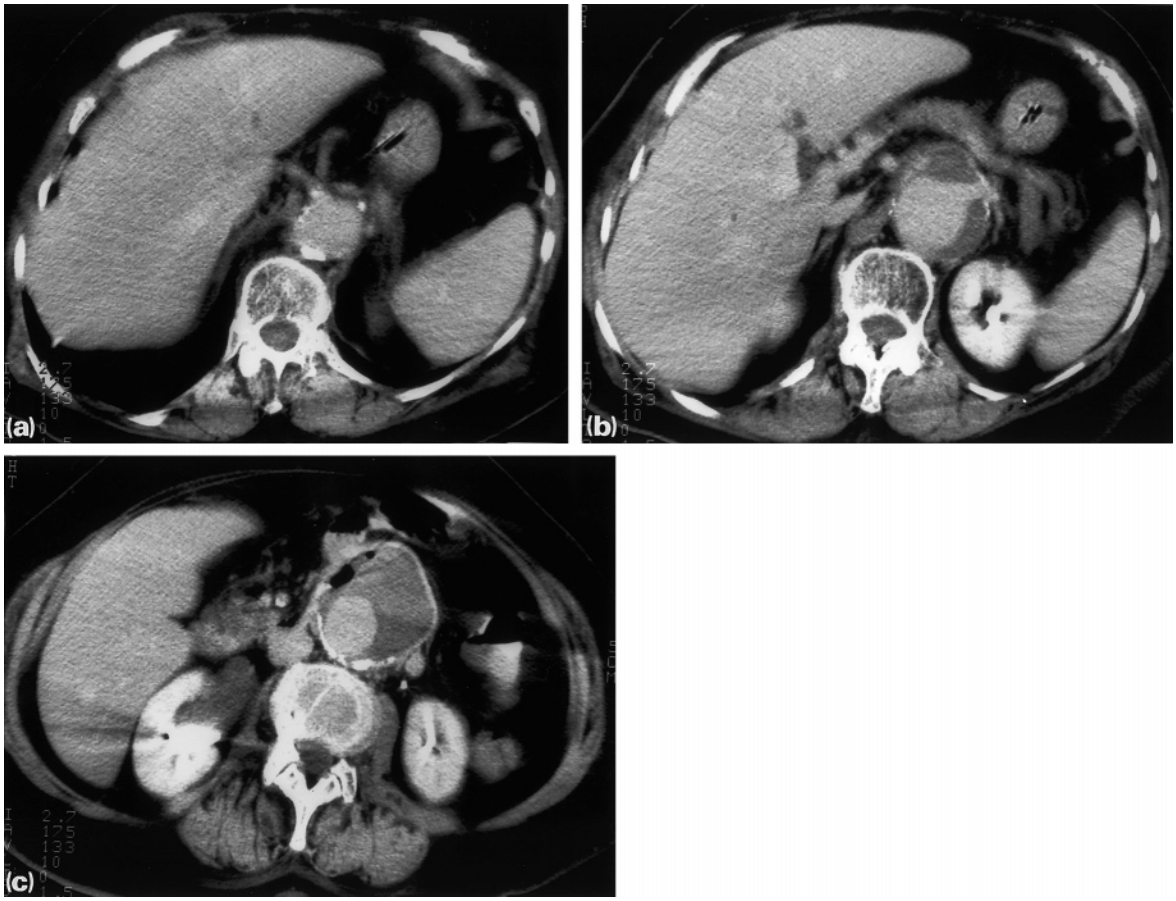

Fig. 1. Computerised tomography showing: (a) Calcification and slight widening of the aorta at the level of coeliac axis. (b) Aneurysm with thrombosis at the level of superior mesenteric artery and left renal artery. (c) Gas in the aortic wall at the caudal level of the left renal vein.

present as a "herald bleed", i.e. epigastric discomfort prior to melaena,[4] pyrexia and/or abdominal or back pain. Any patient with previous aortic surgery presenting with a gastrointestinal bleed must be fully investigated to exclude this devastating complication. Establishing the diagnosis is often difficult and less than one-third of cases are diagnosed preoperatively.[5] Investigations should include an upper endoscopy, which in the Swedish experience[3] was diagnostic in only a third of cases, and/or computer tomography, which is of increasing diagnostic help especially if a pseudoaneurysm is seen. In this case duodenoscopy was negative as the AEF was located more distally.

Surgical treatment of a secondary AEF remains controversial. The conventional approach is removal of the infected graft with suturing of the aortic stump and an axillo-femoral extra-anatomical bypass. The bypass may be performed after or prior to the aortic closure, the latter avoiding lower body ischaemia.[1] Recently some authors have advocated a more conservative approach with the *in situ* replacement of the infected aortic graft if gross infection is not present.[6,7] This method avoids the complications associated with aortic stump pseudoaneurysm formation or rupture, especially when the rates can be as high as 38%.[8] However, the risk of recurrent infection is not known. For *in situ* graft replacement PTFE has been claimed to be more resistant to infection than Dacron.[9] In this case the infected infrarenal aortic graft was situated inferior to a type IV TAAA. The combination of an AEF and a TAAA did not lend itself to the conventional extra-anatomic revascularisation and so the entire aorta below the diaphragm was replaced with a prosthetic graft. Despite a stormy postoperative course, this patient remains well with no evidence of infection 2 years later.

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